OPERATOR'S MANUAL



BACKHOE LOADER
3CX

EN - 9821/9250 ISSUE 7 - 01/2018

THIS MANUAL SHOULD ALWAYS STAY WITH THE MACHINE

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Contents **Page No.**

Acronyms Glossary viii

Introduction
About this Manual
Model and Serial Number 1
Using the Manual 1
Left-Hand Side, Right-Hand Side 1
Cab/Canopy 1
Cross References 2
Location of Manual 2
Safety
Safety - Yours and Others 3
Safety Warnings 3
General Safety 4
Clothing and Personal Protective Equipment (PPE) 5

About the Product
Introduction
General 7
Name and Address of the Manufacturer 7
Product Compliance 7
Description
General 8
Intended Use 8
Log Moving/Object Handling 8
Optional Equipment and Attachments 8
Danger Zone 8
Main Component Locations 8
Product and Component Identification
Machine 10
Engine 10
Axle 11
Gearbox 12
Operator Protective Structure 12
Hydraulic Pump 13
Safety Labels
General 14
Safety Label Identification 14
Operator Station
Component Locations 17
Interior Switches
Ignition Switch 22
Multi-Purpose Switch 22
Cab Interior Light 23
Console Switches
General 24
Road Lights 24
Hazard Warning Lights 24
Front Work Lights 24
Rear Work Lights 25

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Safety

Safety - Yours and Others

All machinery can be hazardous. When a machine is correctly operated and maintained, it is a safe machine to work with. When it is carelessly operated or poorly maintained it can become a danger to you (the operator) and others.

In this manual and on the machine you will find warning messages, you must read and understand them. They inform you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your employer or JCB dealer to explain them.

Safety is not just a matter of responding to the warnings. All the time you are working on or with the machine you must be thinking of what hazards there might be and how to avoid them.

Do not work with the machine until you are sure that you can control it.

Do not start any work until you are sure that you and those around you will be safe.

If you are not sure of anything, about the machine or the work, ask someone who knows. Do not assume anything.

Remember:

- Be careful
- Be alert
- Be safe.

Safety Warnings

In this manual there are safety notices. Each notice starts with a signal word. The signal word meanings are given below.

The signal word 'DANGER' indicates a hazardous situation which, if not avoided, will result in death or serious injury.

The signal word 'WARNING' indicates a hazardous situation which, if not avoided, could result in death or serious injury.

The signal word 'CAUTION' indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

The signal word 'Notice' indicates a hazardous situation which, if not avoided, could result in machine damage.

The safety alert system symbol (shown) also helps to identify important safety messages in this manual. When you see this symbol your safety is involved, carefully read the message that follows.

Figure 2. The safety alert system symbol



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Introduction
About this Manual

Model and Serial Number

This manual provides information for the following model(s) in the JCB machine range:

Model	From:	To:
3CX	2509500	
	2615002	

Using the Manual

This operator's manual is arranged to give you a good understanding of the machine and its safe operation. It also contains maintenance and technical data.

Read this manual from the front to the back before you use the machine for the first time, even if you have used machines of a similar/same type before as the technical specification, systems and controls of the machine may have changed. Particular attention must be given to all the safety aspects of operating and maintaining the machine.

If there is anything you are not sure about, ask your JCB dealer or employer. Do not guess, you or others could be killed or seriously injured.

The general and specific warnings in this section are repeated throughout the manual. Read all the safety statements regularly, so you do not forget them. Remember that the best operators are the safest operators.

The illustrations in this manual are for guidance only. Where the machines are different, the text and or the illustration will specify.

The manufacturer's policy is one of continuous improvement. The right to change the specification of the machine without notice is reserved. No responsibility will be accepted for discrepancies which may occur between specifications of the machine and the descriptions contained in this manual.

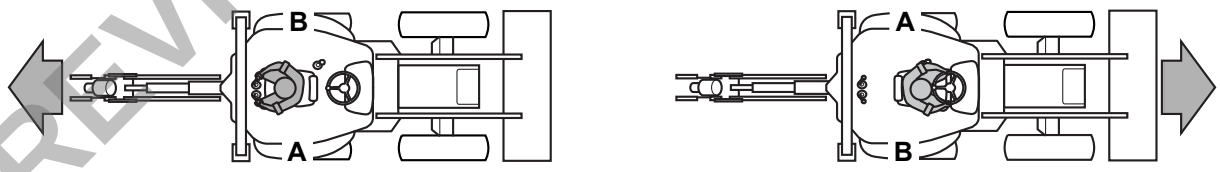
All of the optional equipment included in this manual may not be available in all territories

Left-Hand Side, Right-Hand Side

In this manual, 'left' and 'right' mean your left and right when you are seated correctly in the machine.

This is so whether you are facing the loader (front) or the backhoe (rear).

Figure 1.



A Left **B** Right

Cab/Canopy

(For: Canopy)

This manual frequently makes references to the cab. For example, 'do not operate the machine without an operator's manual in the cab'. These statements also apply to canopy build machines.

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Operation
Introduction

General

The aim of this part of the manual is to guide the operator step-by-step through the task of learning how to operate the machine efficiently and safely. Read the Operation section through from beginning to end.

The operator must always be aware of events happening in or around the machine. Safety must always be the most important factor when you operate the machine.

When you understand the operating controls, gauges and switches, practice using them. Drive the machine in an open space, clear of people. Get to know the 'feel' of the machine and its driving controls.

Do not rush the job of learning, make sure you fully understand everything in the Operation section. Take your time and work efficiently and safely.

Remember:

- Be careful.
- Be alert.
- Be safe.

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Operator Station

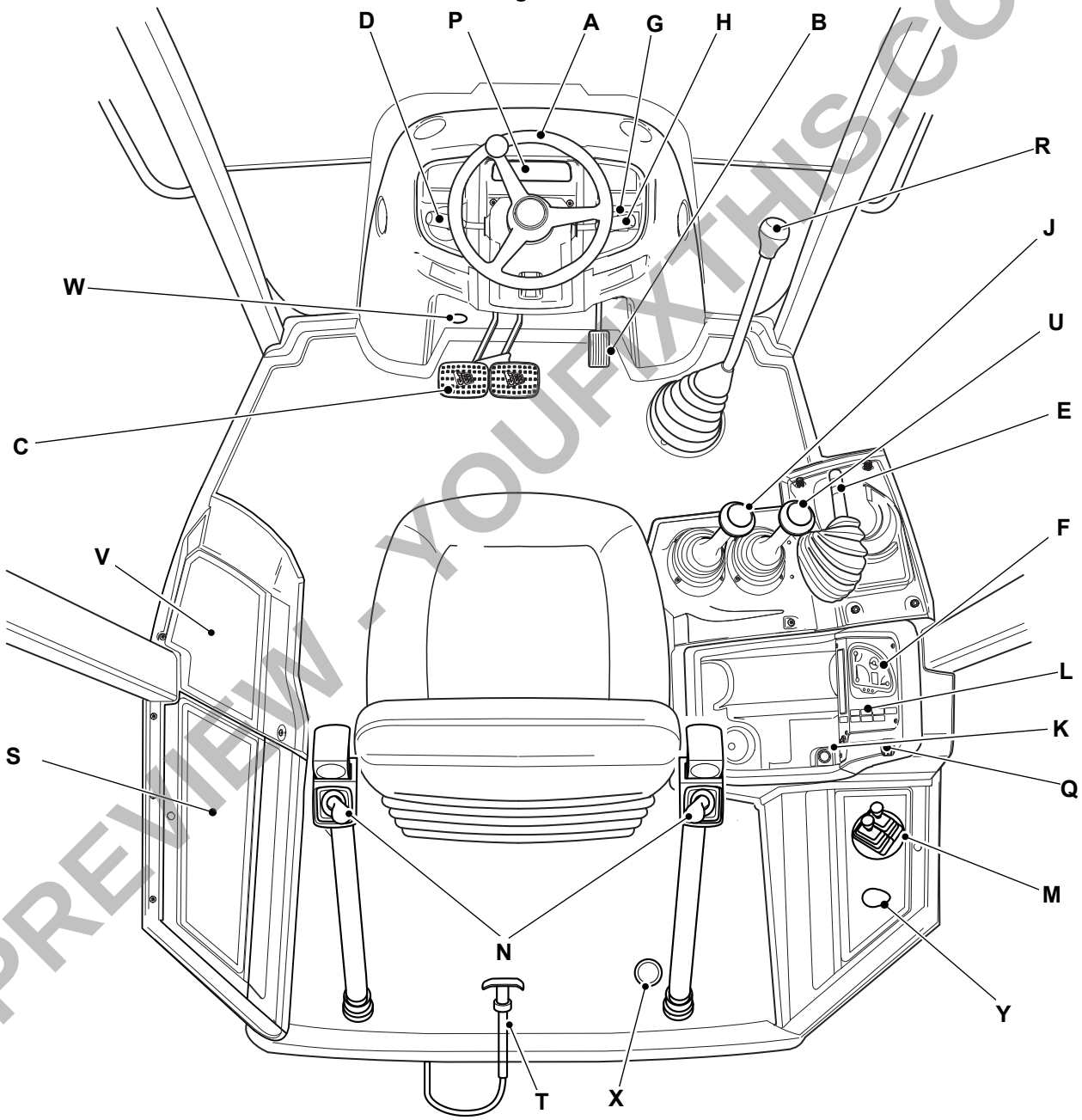
Component Locations

For: 3CXG [T4F], Servo ..... Page 17
For: 3CXG [T4F], Manual Controls ..... Page 18

(For: 3CXG [T4F], Servo)

Canopy Machines

Figure 11.



A Steering wheel
B Accelerator pedal
C Service brake pedals
D Transmission lever
E Park brake lever
F Instrument panel
G Console switches
H Multi-purpose switch
J Loader controls
K Starter switch
L Console switches
M Stabiliser controls

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Attachments
Working with Attachments

Introduction

Attachments

Use only the JCB approved attachments that are specified for your machine. Operating with non-specified attachments can overload the machine, causing possible damage and machine instability which could result in injury to yourself or others.

The use of non-approved attachments could invalidate your warranty.

Metal Splinters

You can be injured by flying metal splinters when driving metal pins in or out. Use a soft faced hammer or copper drift to remove and install metal pins. Always wear personal protective equipment.

Attachments

If you have an attachment which is not covered in the Operator's Manual do not install it, use it or remove it until you have obtained, read and understood the pertinent information. Install attachments only on the machines for which they were designed.

Some direct or Quickhitch mounted attachments are supplied with the instructions on the safety, installation, removal, operation and maintenance procedures. Read and fully understand these procedures before the attachment is installed, used and serviced. If there is anything you do not understand, ask your JCB dealer.

Before you use a direct or Quickhitch mounted attachment, make sure you understand how the attachment will affect the operational safety.

When a direct or Quickhitch mounted attachment is installed, there may be changes in the machines centre of gravity or overall dimensions. These change can effect for example, the machine stability, the gradients on which it is safe to operate or the safe distance from power lines.

Practice with an attachment off the job before you work with it for the first time.

A JCB attachment is designed and manufactured specifically to suit the machines hydraulic system, mounting components and safe load requirements.

An attachment which is not designed for use with the machine can cause damage and create a safety hazard for which JCB cannot be held responsible. Also the machines warranty and any other legislative compliance can be affected by the use of non JCB approved attachments.

If your machine needs the hydraulic system adapting to use an auxiliary attachment, you must consult your JCB dealer. Only suitably qualified personnel must re-route the hydraulic hoses.

All optional direct or Quickhitch mounted attachments will have limits on their operation for example, the lifting capacity, speeds, hydraulic flow rates. Always check the instructions supplied with the attachment or in the Specification section of this manual. Some specification limits may also be shown on the data/rating plate on the attachment.

Do not lift or transport persons with attachments fitted to a quick coupler, if the machine is not designed and equipped for this purpose.

This section of the Operator's Manual includes general information on the operation of the attachment and the procedures for the installation and removal of the attachment.

Attachments for your Machine

⚠ **WARNING** Attachments that are installed with the use of loader or excavator quickhitches must not be used to transport or lift persons if the machine is not designed and equipped to do so.

WARNING Do not operate any machine controls from outside the machine. You or others could be injured or killed by movement of the machine or its working tools or attachments.

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Transporting the Machine

General

⚠ **WARNING** The safe transit of the load is the responsibility of the transport contractor and driver. Any machine, attachments or parts that may move during transit must be adequately secured.

CAUTION Before moving the machine onto the trailer, make sure that the trailer and ramp are free from oil, grease and ice. Remove oil, grease and ice from the machine tyres. Make sure the machine will not foul on the ramp angle.

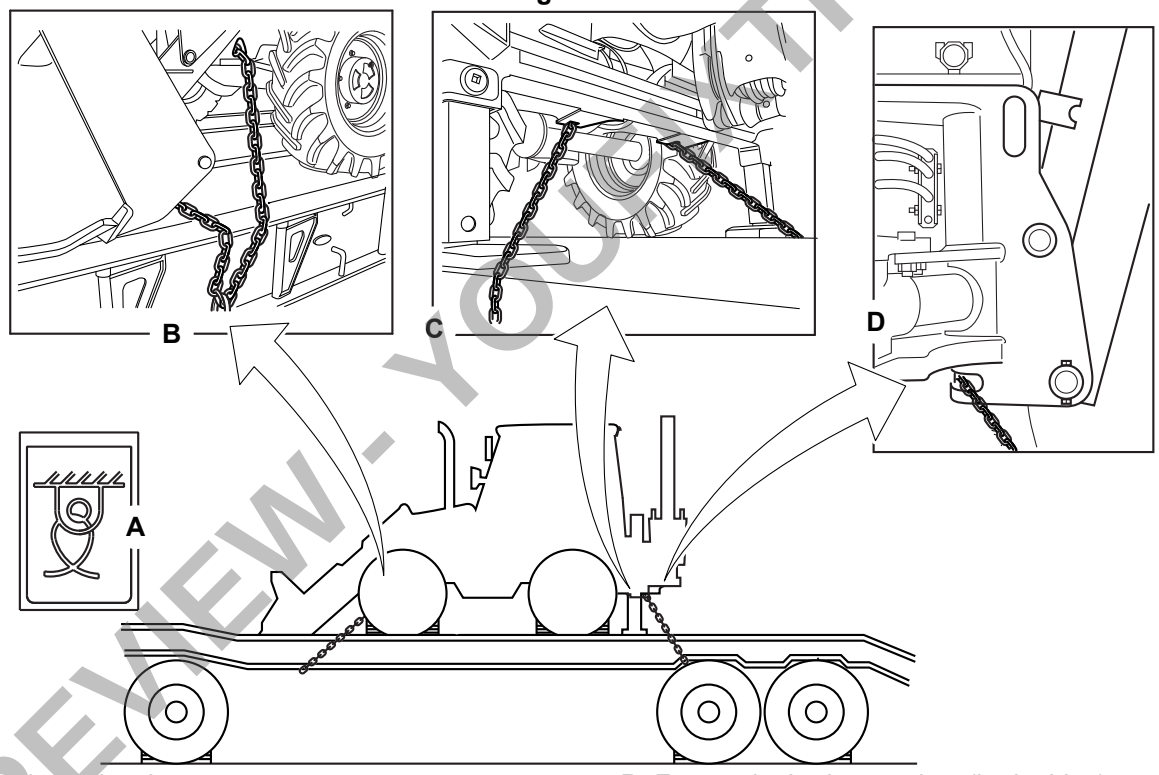
Check the condition of the transport vehicle before the machine is loaded on to its trailer.

Make sure that the transport trailer is suitable for the dimensions and weight of your machine. Refer to: Static Dimensions (Page 225).

Before transporting the machine make sure you will be obeying the local rules and laws regarding machine transportation of all the areas that the machine will be carried through.

Loading the Machine onto the Transporting Vehicle/Trailer

Figure 108.



A Tie-down decal
B Front axle tie-down points (both sides)
C Rear axle tie-down points (both sides)
D Kingpost tie-down point

1. Place the blocks at the front and rear of the trailer wheels.
2. Make sure that the ramps onto the trailer are in the correct position and are attached securely.
3. Set the loader arm and excavator arm to the road travel position.
   Refer to: Preparing for Travel (Page 54).
4. Engage the boom and slew locks.
   Refer to: Safety Equipment (Page 57).
   4.1. If for any reason the slew or boom lock cannot be engaged, then the bucket must be securely lashed to the trailer bed, if no bucket is installed, then secure the dipper end to the trailer bed.

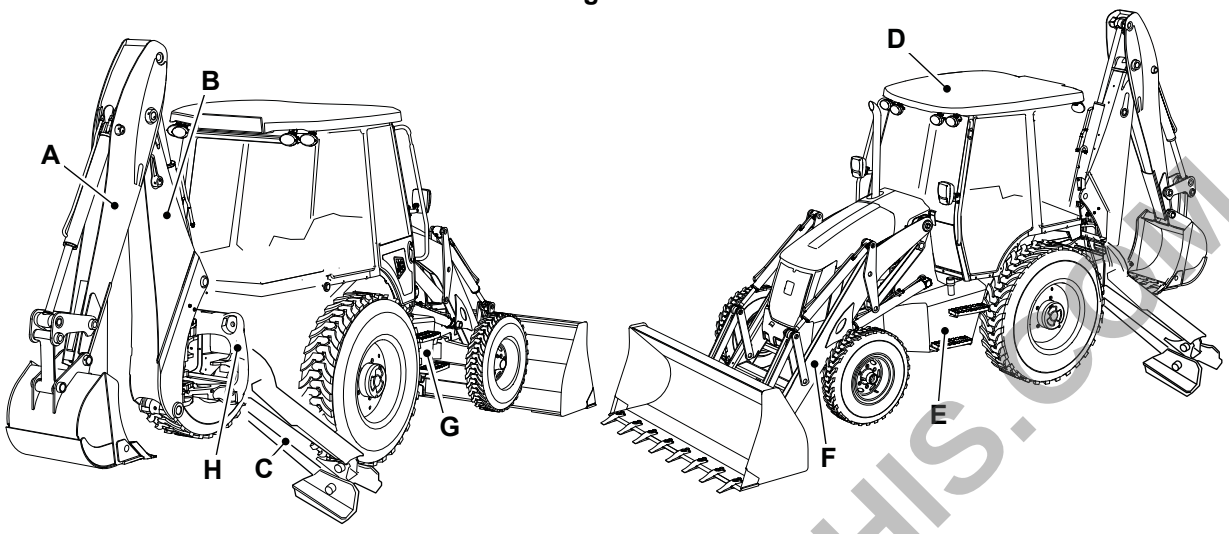
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Table 14.

Component	Task	10	50	100[1]	500	1000	1500	2000
Attachments								
6-in-1 Clam shovel	Lubricate	O	O	□	□	□	□	□
Excavator and loader arm quick hitch	Lubricate	O	O	□	□	□	□	□
Body and Framework								
General	Clean	O	O	□	□	□	□	□
General	Check (condition)	O	O	□	□	□	□	□
All pins and bushes	Check (condition)/Lubricate	O	O	□	□	□	□	□
Visual inspection of structure for damage including welds around ing points and excavator end main pivots	Check (condition)	O	O	□	□	□	□	□
Doors and hinges	Lubricate				□	□	□	□
All cables	Lubricate				□	□	□	□
Cab heater fresh air filter[2]	Replace				□	□	□	□
Servo pod pivots	Lubricate				□	□	□	□
Cab air conditioning recirculation filter (if installed)[2]	Replace				□	□	□	□
Extending dipper	Lubricate		O	□	□	□	□	□
Kingpost clamp	Check (condition)			□	□	□	□	□
Door	Check (condition/operation)			□	□	□	□	□
Front mudguards - security (if installed)	Check (condition)			□	□	□	□	□
Boom lock engagement[16]	Check (condition)	O	O	□	□	□	□	□
Condition of paintwork	Check (condition)			□	□	□	□	□
Stabiliser legs (sideshift)	Check (condition)		O	□	□	□	□	□
Operator Station								
Seat, seat belt	Check (condition)			□	□	□	□	□
Operator protective structure and ROPS (Roll-Over Protective Structure)/FOPS (Falling Object Protective Structure)	Check (condition)	O	O	□	□	□	□	□
Engine								
Oil	Check (leaks)	O	O	□	□	□	□	□
Oil	Check (level)	O	O	□	□	□	□	□
Oil and oil filter[4, 5]	Replace				□	□	□	□
FEAD (Front End Accessory Drive) belt	Check (condition)				□	□	□	□
FEAD belt[14]	Replace							
Engine mounting bolts	Check (condition)			□	□	□	□	□
Hoses	Check (condition)			□	□	□	□	□

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Figure 3.



A Dipper
B Boom
C Stabilisers
D ROPS (Roll-Over Protective Structure)/FOPS (Falling Object Protective Structure) cab
E Hydraulic oil tank
F Loader arm
G Fuel tank
H Kingpost

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Fluids, Lubricants and Capacities

General

⚠ **CAUTION** Waxoyl contains turpentine substitute which is flammable. Keep flames away when applying Waxoyl. Waxoyl can take a few weeks to dry completely. Keep flames away during the drying period.

Do not weld near the affected area during the drying period. Take the same precautions as for oil to keep Waxoyl off your skin. Do not breathe the fumes. Apply in a well-ventilated area.

JCB recommend that you use the JCB lubricants shown as they have been verified by JCB for use on JCB machines. However, you could use other lubricants that are equivalent to the JCB standards and quality or offer the same machine component protection.

No warranty liability will be accepted for engine failures where unacceptable fuel grades (or their equivalent) have been used at any stage.

Table 24.

Item	Capacity	Fluid/Lubricant	JCB Part Number	Container Size[1]	Specification
Fuel tank	127L	Diesel oil	-	-	
Engine (oil)[2]	Minimum 12L Maximum 15L	JCB engine oil EP 5W/40 -30°C (-22.0°F) to 46°C (114.7°F)	4001/2705	20L	API CH-4/CG-4, CF-4,CF,SJ.ACEA, E2, B3, A3
		JCB engine oil EP 15W/40 -15°C (5.0°F) to 46°C (114.7°F)	4001/1805		API CH-4/SJ, ACEA E5, E3, B3, A3
Engine (coolant)[3]	20.5L Wet 21.5L Dry	JCB antifreeze HP coolant/ water	4006/1120	20L	ASTM D3306, ASTM D4985, ASTM D6210, SAE (Society of Automotive Engineers) J1034, BS6580 (1992), AFNOR NF R15-601
Syncro shuttle (2WD (Two Wheel Drive))[4]	14.4L Dry 10L Wet	JCB extreme performance EP 10W -32°C (-25.6°F) to 40°C (103.9°F)	4000/2505	20L	
		JCB extreme performance EP SAE30 -5°C (23.0°F) to 46°C (114.7°F)	4000/2605	20L	
Syncro shuttle (4WD (Four Wheel Drive))[3]	15.4L Dry 11L Wet	JCB extreme performance EP 10W -32°C (-25.6°F) to 40°C (103.9°F)	4000/2505	20L	
		SAE30 -5°C (23.0°F) to 46°C (114.7°F)	4000/2605	20L	
Front axle (4WD)		JCB gear oil HP90 (without LSD (Limited Slip Differential))	4000/0305	20L	
Housing 2WS (Two Wheel Steer)	13L	JCB gear oil HP plus (with LSD)	4000/2205	20L	
Hubs (x2)	2L	JCB gear oil HP90	4000/0305	20L	
Rear axle (2WS)	21L	JCB gear oil HP90 (without LSD)	4000/0305	20L	
		JCB gear oil HP plus (with LSD)	4000/2205	20L	
Housing[6]	16.5L	JCB gear oil LS plus (with LSD)	4000/3905	20L	
Hubs (x2)	1.9L	JCB gear oil HP90	4000/0305	20L	
Brake system	1L	JCB Hydraulic Fluid HP15	4002/0503	1L	

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	Low fuel	As the pointer reaches red zone the amber MIL with illuminate. The digital display will show a text message when the fuel level is less than 20L (4.3 gallons) for 2.5s. LOW FUEL will be displayed when the fuel gauge enters the red area and the buzzer will sound for 1s.
	No fuel	Amber MIL displays NO FUEL. When the fuel goes to less than 10L (2.15 gallons) for 2.5s. The buzzer will sound for 1s. when the fuel level goes up to more than 10L (2.15 gallons).
E	Cab clock	The clock must be on, press the increase or the decrease button to adjust the time. For rapid adjustment, press and hold either button for 5s. Refer to Figure 45.
E+	Increase button	
E-	Decrease button	
F	Warning lights	Refer to Warning Lights.

Warning Lights

Figure 46.

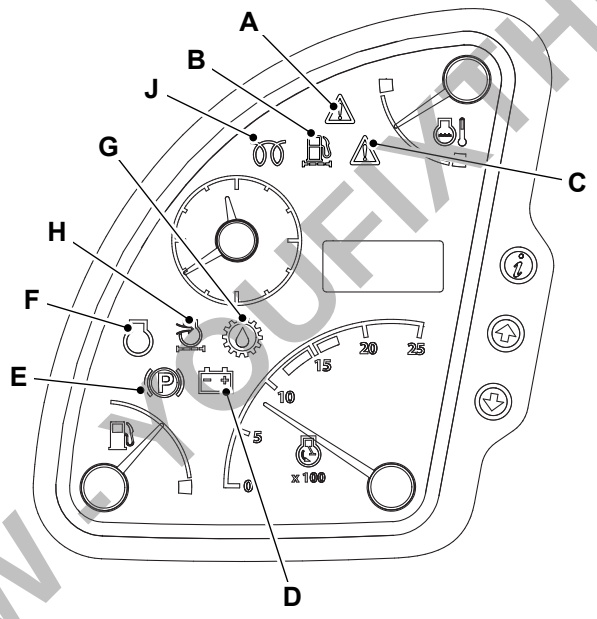


Table 10.

A	Red Malfunction Indicator Lamp (MIL) (critical fault). The digital display LCD (Liquid Crystal Display) will show STOP NOW and a continuous buzzer will sound. Stop the machine immediately, rectify the fault or contact your JCB distributor for advice.
B	Water in Fuel Sensor detected- LCD message WATER IN FUEL displayed. Warning light on continuously. Amber MIL and 1s buzzer. Fault code raised. Drain water from water separator bowl.
C	Amber Malfunction Indicator Lamp MIL Service fault. The LCD flashes SERVICE, a buzzer tone for 1s when a fault occurs. Certain operator faults will display an instruction. If lights D, E, F, G, H come on while the engine is running, stop the engine as soon as it is safe to do so. Do not use the machine until the fault is put right. These lamps will flash to indicate less critical faults are present.

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